

~~Sub 08~~ WHAT IS CLAIMED IS:

1. A method of image compression, comprising the steps of:
  - recursively transforming an image using Discrete Wavelet Transform to create a plurality of levels including at least a first level, multiple  $n$  levels, and a low-low pass subband of level  $n$ , wherein  $n$  is the number of levels;
  - quantizing the transformed image at each level; and
  - datapacking the quantized image, wherein the datapacking step further comprises:
    - encoding of the first level using adaptive run length of zero coefficients;
    - encoding of the multiple  $n$  levels using run-length coding of zero coefficients and a predetermined two-knob huffman table for non-zero coefficients; and
    - encoding of the low-low pass subband of level  $n$  using a low frequency packing algorithm.
2. The method of claim 1, wherein the step of encoding of the first level further comprises the steps of:
  - scanning the quantized image to find largest coefficient magnitude;
  - storing the largest non-zero coefficient magnitude in a header;
  - run-length coding of the zero coefficients in the quantized image; and
  - encoding the non-zero coefficients using a predetermined huffman table.
3. The method of claim 2, wherein the step of encoding of the first level further comprises the steps of: if a non-zero coefficient is not found in the predetermined huffman table, encoding an escape code and encoding the non-zero coefficient in signed bit representation.
4. The method of claim 3, wherein the step of encoding of the first level further comprises the steps of: encoding a run in the quantized image by using three bits; and





1 recursively transforming an image using Discrete Wavelet Transform to create a plurality of  
2 levels including at least a first level, multiple  $n$  levels, and a low-low pass subband of level  $n$ ,  
3 wherein  $n$  is the number of levels;

4 quantizing the transformed image at each level; and

5 datapacking the quantized image, wherein the datapacking step further comprises:

6 encoding of the first level using adaptive run length of zero coefficients;

7 encoding of the multiple  $n$  levels using run-length coding of zero coefficients and a  
8 predetermined two-knob huffman table for non-zero coefficients; and

9 encoding of the low-low pass subband of level  $n$  using a low frequency packing  
10 algorithm.

1 17. A method of compressing a digital image data set, comprising the steps of:

2 performing a plurality of two-dimension discrete wavelet transformations on the data set,  
3 wherein the plurality of transformations includes a first level, a plurality of intermediate levels, a last  
4 low-pass subband of a last level;

5 quantizing the plurality of transformations;

6 datapacking the quantized first level using a first packing algorithm;

7 datapacking the plurality of quantized intermediate levels using a second packing algorithm;

8 and

9 datapacking the low pass subband of the last level using a third packing algorithm.

1 18. The method of claim 17, wherein the first packing algorithm includes the step of:

2 adaptive run-length coding of a plurality of zero coefficients.

1 19. The method of claim 17, wherein the second packing algorithm includes the steps of:

2 run-length coding of a plurality of zero coefficients; and

3 two-knob huffman coding of a plurality of non-zero coefficients.

